

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: KFGlynn@aol.com  
Subject: [6859] 30M Contacts made while on vacaQ  
Message-ID: <960409115710\_267537921@mail06>

Hello gang,

Just got back from sunny FLA. Brought along my MFJ-9030, gell cell and inverted v. Eveything went into a knapsack. While the YL studied I threw an inverted v into a nearby palm tree and operated. Worked following contacts on 30M:

YT70M, SP3HHU, LX2KQ, G4PKT, DL5ZG, WP2X, EX1/AB5VI and 11 states. Had a lot of fun. Worked from Boca Raton and Delray Beach, FL. Worked right on A1A at entrance to beach while in Delray. People asked what that thing was (ant) and how I got it there.

73 Kevin KB2TE0

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Charles Cashion <ccashion@spdmail.spd.dsccc.com>  
Subject: [6873] 3906  
Message-ID: <199604091835.AA05155@aplo1.spd.dsccc.com>

Fellow battery enthusiasts:

On the 26th of November 1995, another of our esteemed QRP-ers posted the following information:

A&A has the UC3906 for \$7.50 in quantities of five  
A&A is at 1-714-952-2114

Jade has them for \$7.00 each singly as per their ad in Worldradio.  
Jade is at 1-603-329-6995

If somebody else has information that is either more accurate, or pricing that is more current, please feel free to publicly correct me.

Regards and 72s,  
Charles Cashion  
ac5gt

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Stan Wilson <randyw@crl.com>  
Subject: [6856] 40 METER BEACON  
Message-ID: <316A7216.227B@crl.com>

Hi Fellows,

The 40 meter beacon is ready to trot. Frequency stability the past 12 hours has been within +/- 2 hz so those with a VE2IQ adapter should have a slight advantage. Framing might be a little off this first time (100 msec dits).

Reception reports would be appreciated. e-mail address is randyw@crl.com. Randy is my son n0kqg and he loves it when I fill his mail box up. :-)

I plan on running the beacon for a week if everything holds together and no serious electrical storms. So here are the details:

----- 40 METER CW QRP BEACON -----

Start Time: No later than Wednesday April 10, 1996 3:00 PM. Will start earlier if I am happy with the frequency stability tests now running.

End Time: Wednesday April 17, 1996 6:00 PM.

Location: 15 miles NNW of St. Louis, MO.

Lat. 38 49 02 N

Long. 90 29 38 W

St. Charles, MO. 63301

Frequency: 7033.0 kHz

Output Power: 250 milliwatts

Station: Using a old Navy T-827 transmitter, Super CMOS II keyer

Antenna: 40 meter trap vertical that is ground mounted. I have a buried ground plane under this antenna so the radiation angle should be low.

Message: VVV VVV VVV 250 mW <4\_letter\_code\_word> DE AK0B/B QRP BEACON

QSL/Certificates acknowledging the codeword will be available.

I am trying to run everything to CCW specifications so hopefully those equipt will be able to lock on and decode. You would have an 20 db advantage.

Please included in your reports receiver, antenna, filters and if you received signal as CW /and/or CCW.

Questions, comments, reports, etc. to randyw@crl.com.

Regards,  
Stan Wilson      AK0B      St. Charles, MO. 63301

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: prvalko <prvalko@oakland.edu>  
Subject: [6865] 49er help sought  
Message-ID: <Pine.OSF.3.91.960409124136.10119A-100000@saturn.acs.oakland.edu>

Gang,

I'm on the verge of building my 49er and I was wondering if anyone kept the concise list of minor mods for the "B" board?

The only one I can remember is to reverse the VX0 coil and variable cap so that the cap goes to ground. There was also something to do with winding a couple toroids but as I do not have access to any forms I don't think I could do that mod.

Thanks in advance!

=paul= wb8zjl

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: GREGOIRE@ENDOR.COM (ERNEST GREGOIRE)  
Subject: [6892] 80 METER NE.QRP-C NET  
Message-ID: <199604092342.TAA75061@nss2.CC.Lehigh.EDU>

WOOPS, I forgot what day it was, Joel will have to try again next week.  
The net is on monday night at 21:00 e.d.s.t. that's 9 p.m. on monday evening.

73 de AA1IK

Ernie  
de AA1IK                      N.E.-QRP-C. # 202      ( Lead by example, It is better to      )  
                                 QRP-L member #95.      ( pull a string than it is to push it.)

Ernie Gregoire  
RR 1 Box 221  
Canaan, NH. 03741

New England QRP Club, information  
available on request by sending me a  
S.A.S.E. or via E-mail.

e-mail : GREGOIRE@ENDOR.COM  
packet : AA1IK@WA1WOK.FN43FE.NH.USA

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: adams@chuck.dallas.sgi.com (chuck adams)  
Subject: [6852] Aha!  
Message-ID: <199604091314.NAA18020@chuck.dallas.sgi.com>

I told you so and nobody listened.

At 1250UTC, April 9, 1996, local sunrise JH1UAE,  
Masa on 10.108MHz my 329 his 559 RST reports.  
My OHR Explorer II at 0.95W measured key down.

He was in QSO for about 4 to 5 minutes and I  
thought I was going to lose him. Heard another  
station call him at the same time I did, but never  
and I say never give up. I signed /QRP and that's  
the first thing that he caught and he gave me  
preference over the other guy. Unfair? Maybe,  
but if the other station knows that you are starting  
with a disadvantage he/she just might give you a  
fighting chance.

This posting is a data point for the warmup. Not  
a boast-post contrary to what some might think. :-)  
It's just a modest little station setup testing the  
ether and ions.

dit dit

--

Chuck Adams (K5FO CP-60) adams@sgi.com  
Box 181150, Dallas, TX 75218-8150

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: JEVERHART@cayman.vf.mmc.com  
Subject: [6855] Antenna Analyzers  
Message-ID: <960409100222.23ee6ea9@carib.vf.mmc.com>

Gang,

Another topic I'm commenting on late! Can't go away for a weekend.

I have experience with both the MFJ 249 and the Autek RF-1. As an officer in a ham club (VARA), I got the club to buy the MFJ unit when it was the only game in town. We lend it out to any of our members to do antenna work. I since got my own Autek unit.

The MFJ has a lot going for it, although the MFJ 259 is more comparable to the Autek, including an "RF Resistance" meter as well as SWR. The MFJ units have an analog meter which makes "tweaking" an antenna for minimum SWR easy. They also have a wide tuning range covering from below 160 to above 2 meters. A big plus, too, is that you can use their internal frequency counters to read external signals. Unfortunately you need about 600 mv of signal to do this, though.

The Autek RF-1 is very handy. It has a digital readout of SWR, impedance, and will also indicate calculated inductance or capacitance. You cannot use its counter externally. Tuning range is less than the MFJ units, covering 1.2 to 30+ MHz. The Autek unit has a two-knob tuning scheme that is a little awkward, but sometimes easier to fine tune than the MFJ. It also has the huge benefit that it is palm-sized and very lightweight. For field use or on top of a tower the Autek wins hands down. And it easily doubles as a piece of lab test equipment. Finally, the RF-1 manual is a jewel itself.

I guess the bottom line is that the MFJ is probably easier to use and straightforward, while the Autek unit is much smaller and \*much\* more versatile. Having both available, sometimes I use one, sometimes the other, but the Autek will be with me at QRP To The Field.

The AEA unit? Well it looks nice but I'm afraid it's too rich for my blood. I know several folks with MFJs and Auteks, but nobody with the AEA.

BTW, I've written a review of the Autek which can be found in the qrp-1 archives, and an article on another use for the MFJ unit a couple of years ago in QRP Quarterly.

72/73,

Joe E., N2CX

work: jeverhart@cayman.vf.mmc.com  
home: n2cx@voicenet.com

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Scott Rosenfeld NF3I <ham@w3eax.umd.edu>  
Subject: [6857] Antenna Analyzers  
Message-ID: <Pine.3.89.9604090928.A7840-01000000@w3eax.umd.edu>

Never having used the Autek or AEA, I can only say that the MFJ-259 more than meets all of my requirements. To actually know that 2:1 comes from 25 or 100 ohms is a big deal.

To be able to sweep across a huge frequency range is ALSO a big deal to me. The U of M radio club has a lot of VHF activity, like a repeater with 10-15 active club members who use it. Just the other day, one of the guys wanted to make a nice antenna for outdoors, and I gave him the plans for the S0-239 vertical.

At our meeting, we tested the thing and found it to be resonant at 148 (he'd cut it a little short) but were able to ALSO show that the 2:1 bandwidth went from 139 to 165 MHz!

And it's also good for 6m, making FM radio antennas, etc. It is THE singlemost used item in the shack. I wouldn't trade it for anything, but I would put a thin piece of plexi over the counter display. Anyone else's scratched???

\* Scott Rosenfeld NF3I Burtonsville, MD FM19 QRV 80-10/6/2/440 \*  
\*\*\* VHF @ <25w, HF @ <5w \*\*\* Save a cake, pound BRASS instead \*\*\*  
\* 138 cfd with dipoles \* QRP-L #147 QRP ARCI #9054 DXCC/WAS/WAC \*  
\* 301-549-1022 h / 301-982-1015 w \* 145.490- 147.225+ PL 156.7 \*

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: CamQRP@aol.com  
Subject: [6844] ARCI Spring QSO Party  
Message-ID: <960409001217\_508988666@mail06>

Ladies and Gents -

The QRP ARCI Spring QSO Party happens this coming weekend, April 13-14. It should be a good one, since we received some extra publicity both in the QST "This Month in Amateur Radio" column and in Howie Cahn's (WB2CPU) column in

the National Contest Journal.

The condensed rules follow. Full rules appear in the January issue of the QRP Quarterly. Hope to C U there - 72, Cam N6GA

QRP ARCI Spring QSO Party, CW, sponsored by QRP ARC International, 1200Z April 13 to 2400Z April 14. Single band, all band, high band (20, 15, 10 and 6 meters) or low band (160, 80 and 40). Operate no more than 24 hours. Work stations once per band. Exchange signal report, state/province/ DXCC country and ARCI number (if member) or power out (if nonmember). 1.830, 3.560 3.710 7.040 7.110 14.060 21.060 21.110 28.060 28.110 50.060. QSO points: 5 pts for QSO with member, 2 pts for non-member, same continent, and 4 pts for nonmember, different continent. Multiply total QSO points (all bands) by total S/P/Cs (all bands) by power multiplier (> 5 W output, X1; <5 W output, X 7; <1 W output, X 10; < 250 MW output, X 15). Mail entry (SASE for results) to QRP ARCI Contest Manager, Cam Hartford, N6GA, 1959 Bridgeport Ave., Claremont, CA 91711.

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Steven Wilson <randyw@crl.com>  
Subject: [6885] BEACON update...  
Message-ID: <Pine.SUN.3.91.960409130206.16079A-1000000@crl3.crl.com>

Per a couple of suggestions I am sending the code word twice in place of so many VVV's.

Format: vvv 250 mw <code word> <code word> de ak0b/b qrp beacon

This 250 milliwatt should give your receivers and antennas a good test. Code speed is 12 wpm. Freq is 7033 khz.

Cheers de stan ak0b

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "Frank G3YCC" <g3ycc@enterprise.net>  
Subject: [6872] DSP Filters  
Message-ID: <199604091836.SAA00972@mail.enterprise.net>

Thanks to the many people who answered my request for observations on

the effectiveness of DSP filters, especially for digging CW out of the noise on LF (actually 160M, my main interest)>  
It would appear they can help, but the consensus of opinion seems to suggest that they are limited when used in the AF chain.  
Maybe I'll stick to what I already have and save the dough! DSP filters are expensive here any way (up to 300 pounds), and if they ain't gonna do the job...  
Cheers all and thanks for the help.  
-----

73

Frank G3YCC G QRP 042

QRP Web Page: <http://homepages.enterprise.net/g3ycc/>

Packet: G3YCC@GB7HUL.#15.GBR.EU

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: KFGlynn@aol.com  
Subject: [6863] EZNEC  
Message-ID: <960409122202\_187645653@emout10.mail.aol.com>

Hello gang,

Is anyone using EZNEC ant. modeling software? I'd appreciate any comments on its effectiveness. Is there shareware available?

Thanks for the info.

73 Kevin KB2TE0

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Scott Rosenfeld NF3I <ham@w3eax.umd.edu>  
Subject: [6887] FS: Tejas Backpacker II - 40m  
Message-ID: <Pine.3.89.9604091620.E8753-01000000@w3eax.umd.edu>

For sale, Tejas Backpacker II - 40m direct conversion receiver.

Project started by KD1TS, completed by me, now time to sell it.

Perfect cond., all aluminum, 6x7x2" and 20 ounces. Covers 7.0 up to 7.2 MHz, three-position audio filter.

With manual, \$75. Just don't use it...



\* Scott Rosenfeld NF3I Burtonsville, MD FM19 QRV 80-10/6/2/440 \*  
\*\*\* VHF @ <25w, HF @ <5w \*\*\* Save a cake, pound BRASS instead \*\*\*  
\* 138 cfd with dipoles \* QRP-L #147 QRP ARCI #9054 DXCC/WAS/WAC \*  
\* 301-549-1022 h / 301-982-1015 w \* 145.490- 147.225+ PL 156.7 \*

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Allen Jones <ajones@adsnet.com>  
Subject: [6882] Gel Cell Battery Packs  
Message-ID: <199604092002.PAA13625@alice.adsnet.com>

Hi Gang . . . I received a my battery pack from Damark today. I originally posted a message to the list concerning this on April 4th which is the day I placed the order.

It really is a nice package. The molded plastic clam shell case contains a gel cell battery I would estimate at 6.5 - 7.5 Ah. I haven't opened it up yet. :- ) It is approx. 8"x7"x3" and weighs 5 lbs. There is a pop out handle for carrying as well as a shoulder strap. A 15 amp blade type automotive fuse plugs into the side of the case making it easy to replace. It has dual switched cigar lighter sockets for the 12V output and 3 coaxial type, one each for 3V, 6V and 9V out. Four LED's show if the unit is charging as well as the condition of the battery. Charging circuitry is built in but you must supply an outside source of 14-15 VDC. It comes with a DC charging cord allowing you to plug into the cigar lighter of an automobile.

I've seen similar units advertised in QST for \$49.95. I paid \$26.99 (frequent buyers club discount, otherwise \$29.99) plus \$6.99 s/h. It makes an excellant power source for QRP operation.

BTW, I don't work for Damark, etc., etc.....

72/3 de Allen, K9DZE

=====  
Allen Jones K9DZE ajones@adsnet.com  
Michigan City, Indiana EN61nq  
ARCI G-QRP NorCal QRP-L #112  
=====

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: facmsa@facilities.buffalo.edu (Adams, Mark S.)  
Subject: [6878] HAMCALC  
Message-ID: <1996Apr09.145900.1483.1301@facilities.buffalo.edu>

Does anyone know where I can download a copy of HAMCALC? It is a nice program by a Canadian ham and includes a module based on the Larry East coax trap article in Compendium #2.

Thanks in advance,  
Mark  
N2VPK

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: adams@chuck.dallas.sgi.com (chuck adams)  
Subject: [6842] Hey Warmup under way on 30M  
Message-ID: <199604090305.DAA17374@chuck.dallas.sgi.com>

Gang,

Was at the workbench working on a rig and  
had the headphones on and listening to 30M.

Band was hot. Worked 6 QRP 2xQRP QSOs back  
to back including one with W5QJM/QRP. Heard  
K4TWJ, but Dave has always got a group after  
him. Everyone knows he hangs out on 30M a  
lot. He's using a QRP+ lately.

And when the band is dying out, don't go away.  
It does come back once or twice.

Heard a herd of critters at 10.104 or so. Must  
be some rare DX down there.

I think I've got to go over to the neighbors and  
figure how to rip outta the ground one 70'  
R-25 tower and move it over and get a three element  
30M beam up!! :-) But that wouldn't be fair.

Besides W5TFB, are there any other NEC2 users on  
QRP-L? Preferably running on a workstation?

Come on up, the waters fine on 30M. I love  
daylight savings time. Can get home in time,  
walk 4 miles and get on the air before the  
sun gets down.

dit dit

--

Chuck Adams (K5FO CP-60) adams@sgi.com  
Box 181150, Dallas, TX 75218-8150

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "Bounsouk Singharath (N3HXV)" <boun@w3eax.umd.edu>  
Subject: [6849] Introduction of myself, as a new member of this qrp club.  
Message-ID: <Pine.3.89.9604082313.A7179-0100000@w3eax.umd.edu>

Low power HF communication has been a very great interest for me for quite a long time. Since I live in an apartment building, this is the only way I can keep my ham radio active.

My present set up is:

radio gear: Heathkit HW-8,

band of operation: lower end of the 80-meter CW band,

Frequency: 3.525 to 3.575 MHZ,

power supply: lead-acid gel-cell 12V 7AH.

antenna set up: small rectangular loop, 11 feet by 9 feet, tuned down to 80 meter band by an air dielectric variable capacitor, connected between the outer shield of RG-58 and one end of the loop. The other end of the loop wire is connected to an inductor (10 turns of solid copper #14 wound on a 2.5 inches long, 0.75 inch diameter). The other end of this inductor is connected to the outer shield of the RG-58. The inner conductor of the RG-58 is connected to (tapped) turn #7 of the coil, counting from GND or outer shield of RG-58.

With this kind of impedance matching, the low radiation resistance of the loop (#22 stranded wired from Radio Shack), approx. 3-ohms is stepped-up to 52-ohms.

This gives a bandwidth of 50-KHZ at SWR at bandedge= 1.5:1.

contacts made: 1. Local, 15 miles away, RST report=449.  
2. Area 8, RST report= 229.  
3. Area 9, RST report=229.  
4. Kentucky, RST report=449.  
5. Kentucky, RST report =229.  
6. New Jersey, RST report=229.

note: only 5 QSO for the past 2 months!

Very discouraging.

reason for my using the 80-meter band: This band seems to be opened every night.

Thanks,  
73, Boon, de N3HXV.

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "JOHN F. McCLUN" <JFM001@DENTAL3.AB.UMD.EDU>  
Subject: [6851] Knightliter's Net Operator?  
Message-ID: <199604091205.IAA01554@comm1.ab.umd.edu>

SRI FBW but

I need one of the net operators for knightlitters to contact me about a gripe I would like to air to them. At the above email address, PSE

John N3REY  
Always QRP!

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: QRPBOOK@aol.com  
Subject: [6864] NE QRP officers please read  
Message-ID: <960409123449\_509322180@emout07.mail.aol.com>

I am about to go to press on the Electronic Data Book for Homebrewers and QRP Yellow Pages and need club info.

I need the following information:

Club name:

Contact person (someone who will be around for several years as officers change):

Contact e-mail address:

Club mailing address:

Newsletter and frequency of publication:

I got info from someone last week, but it was not the info I needed. I hope to button this up and get it in the mail to the printer this afternoon.

72,  
Rich W0HEP  
Five Watt Press

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: adams@chuck.dallas.sgi.com (chuck adams)  
Subject: [6886] NEC2 Questions  
Message-ID: <199604092026.UAA18669@chuck.dallas.sgi.com>

Gang,

I've gotten too many questions to answer individually, so here goes a small (I hope) post.

"NEC - Numerical Electromagnetics Code - Method of Moments

A user-oriented computer code for analysis of the electromagnetic response of antennas and other metal structures."

Manuals dated January 1981 and for Lawrence Livermore Laboratory (Report UCID 18834) and Naval Electronic Systems Command (NAVELEX 3041) and Naval Ocean Systems Center. Documents are available from National Technical Information Service (NTIS) for \$133. I know 'cuz I spent the money.

The program is written in FORTRAN and is 9,179 lines long, so it's not a piece of cake for a PC type system. Spend the money and get ELNEC from W7EL if you have a PC. It's money well spent. See QST for ads and pricing.

The code is used a lot still for modeling of all kinds of antennas, etc. in commercial and governmental environments. It is PD and available from several ftp sites. I just ported it to SGI without any difficulty, but about 30mins work and a small subroutine.

There is a web page for NEC and check your favorite search engine to find it.

I have work in progress to get the data/program input manual in TeX and to PostScript. I'll put this on LeHigh.EDU but probably after Dayton. Too much going on before then.

Then we'll see about the Theory manual. :-)

This program requires knowledge of or it would help a lot to know E&M and Maxwell's Eqs. just to make sure you don't get some bogus results. I'd hate to see someone written up in Kurt's column for unrealistic gain from some super-duper configuration

of wire and fiberglass. :-) I will not become a consultant  
(unless you come up with some big bucks :-) ) on this program.  
It's every man, woman, and child for themselves. It gets done when it  
gets done. :-)

dit dit

--

Chuck Adams (K5FO CP-60) adams@sgi.com  
Box 181150, Dallas, TX 75218-8150

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Steve Miller <kg7pv@teleport.com>  
Subject: [6860] pixie ?'s  
Message-ID: <199604091534.IAA11741@desiree.teleport.com>

Hi, got my first Pixie running early this am. Of course now I have several  
questions. Am looking for suggestions on any mods for sidetone, huskier  
transistor for Q2 and RIT.

Had saved some of the posts but now can't find them :-(

First Pixie is on 7110 and will go into an Altoids box. Next Pixie will go  
on 7040 and then on to a 49'er (have the board but promised myself I'd do  
the Pixies first!)

Steve Miller KG7PV

Portland, Or (packet kg7pv @ k7iqi.or.usa.noam)

Norcal # 308, QRP-L #109

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: NYOUNG@nova.wright.edu  
Subject: [6893] Q-Dope, DX, 30m, FL, DST & similar stuff  
Message-ID: <01I3CLQ2DZ9E8WYP7J@nova.wright.edu>

Back in the 1972, after I got out of the Navy and was playing  
with my Argonaut in the basement of the folks' home in Kettering,  
I ran into a bunch of late-night loonies on 3968. It was the  
"Ohio Valley Teenage Net." I was far from a teenager, but I remember  
one of the group (WB4REN, I believe it was) telling the rest of  
the gang to "shut up. I wanna hear this guy running 5 watts."  
About 3 years later, when the oldest boy was born, I ran into  
these nuts again. I'd sold the Argonaut (yeah, I know...) and had  
built (?) an HW101. I found the OVTN again. They talked a lot about  
"working some DX right now" and making purchases of H45(ish) or  
4-Charlie from some "alpha-sierra-squared." And they changed the  
name of the group to the Ohio Valley Teratology Net. Most of 'em

were at least graduated from high school, so the name change fit. No one, you'll notice, talked about dope. We worked DX and listened to WB4REN have conversations with the California Atheist Net (who would show up during LNR [late-night-radio] sessions while we were working DX... or whatever. Evidently the DEA or FCC caught on, 'cause WB4REN got his license suspended. A couple times.

And since we're talking about dope and DX, how about Kevin's Florida adventure? Man, talk about the band coming to life. I agree with Chuck and others that, if you're wanting to work some DX (and we're talking about the long-distance communication thing here, not some kind of inductor sealant), 30m is the place to be. I know 'cause I've listened (I don't like pile ups. It reminds me of waiting for the man. But that's another story...) and heard all kindsa stations. Kinda like when I finished the ARK4 and was sitting out in the printery, listening to YVs and LUs and PYs on 40m. But that was before the time change. Or the band change or something.

See, that's the problem. I don't worry about DST or EST or UTC. I figure that if I start out from my house at 9:30 a.m. to go over to Dave Churchman's Sterling Type Foundry & Collection of Curious Printing Junque, I can get there about the same time that I left. Dave's in Indianapolis, see? So I get there when I left, see?

Now if I could just figure out what Daniel and the other engineer types were talking about with all this DDS stuff, I might be able to say something stupid. DDS. DX, whatever.

73

Nils

WB8IJN +c

"Elect 'em all. Let God sort 'em out."

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: QRPBOOK@aol.com  
Subject: [6866] QRP Clubs - last day for info  
Message-ID: <960409124704\_509331968@mail02.mail.aol.com>

This is the final day. I want to put it in the mail to the printer this afternoon. Does anyone know any e-mail addresses for any of the following so I can get the info needed. I have no problem using the info from DL8MFQ, but I was hoping to have up to date info from club officers before printing the list. If nothing is received, I will use the info I have.

Tnx,  
Rich WOHEP  
Five Watt Press

I still need info on the following clubs:

- \* MFJ 90's Radio Club
- \* NE QRP Club (info not complete)
- \* Northeastern Illinois QRP Society
- \* QRP Club of British Columbia
- \* 9A QRP Club

If you are an officer or are knowledgeable about any of the clubs listed above, please drop me a line promptly.

I have info on the following clubs either from input from an officer or from the club listing by Richard Hieber DL8MFQ/AA8CP:

AZ QRP ScQRPions  
Benelux QRP Club  
Colorado QRP Club  
CW Operators QRP Club  
Durham Region QRP Club  
EA QRP Club  
G-QRP CLUB  
Italian QRP Club  
JARL QRP Club  
Long Is. Heavy Hitters  
MI QRP Club  
NE QRP (info not complete)  
NJ QRP  
N. Georgia QRP Group  
NORTEX  
NorCal  
NW QRP  
OK QRP Club  
Oklahoma QRP Club  
QRP-ARCI  
QRP Club of Ireland  
QRP-L  
QRP Society of Central Pennsylvania  
St. Louis QRP Society  
U-QRP Club  
2005 ARS



From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: ljones@why.net (ljones)  
Subject: [6889] Semiconductor Web Pages  
Message-ID: <19960409230708707.AAA132@dal29.why.net>

Greetings Gang...

For those that don't get QEX, here is a list of semiconductor manufacture web pages that was listed in the editorial by KE3Z.

ANALOG DEVICES:	<a href="http://www.analog.com/">http://www.analog.com/</a>
CYRRUS LOGIC/CRYSTAL:	<a href="http://www.cirrus.com/prodtech/">http://www.cirrus.com/prodtech/</a>
EXAR:	<a href="http://www.exar.com/products/prodques.htm">http://www.exar.com/products/prodques.htm</a>
HARRIS:	<a href="http://www.semi.harris.com/product_information.html">http://www.semi.harris.com/product_information.html</a>
HITACHI:	<a href="http://www.halsp.hitachi.com/tech/tech.html">http://www.halsp.hitachi.com/tech/tech.html</a>
MAXIM:	<a href="http://www.mxim.com/">http://www.mxim.com/</a>
MOTOROLA:	<a href="http://Design-net.com/">http://Design-net.com/</a>
NATIONAL:	<a href="http://webdirect.national.com/">http://webdirect.national.com/</a>
NEC:	<a href="http://www.ic.nec.co.jp/english/products/index.html">http://www.ic.nec.co.jp/english/products/index.html</a>
PHILIPS:	<a href="http://www.semiconductors.philips.com/ps/">http://www.semiconductors.philips.com/ps/</a>
SIEMENS:	<a href="http://www.sci.siemens.com/">http://www.sci.siemens.com/</a>
Texas Instruments:	<a href="http://www.ti.com/sc/docs/schome.html">http://www.ti.com/sc/docs/schome.html</a>
XILINX:	<a href="http://www.xilinx.com/products.html">http://www.xilinx.com/products.html</a>
ZILOG:	<a href="http://www.zilog.com/products.html">http://www.zilog.com/products.html</a>

One other web source is at

[http://www.yahoo.com/business\\_and\\_economy/companies/semi.conductors/](http://www.yahoo.com/business_and_economy/companies/semi.conductors/)

I have also found that just setting up your destination as

[http://www.\(company name\).com](http://www.(company name).com)

will sometimes get you to their web page and then you go from there. Try it sometime, it is amazing what is out there!

72/73

dee-it dee-it

Larry Jones N50SG <><	NorTex	QRP-ARCI	G-QRP	MI-QRP
4028 Random Circle	NorCal	NE-QRP	QRP-L	NTMS
Garland Tx 75043-3250	EM12QU	96.62 W LONG	32.87 N LAT	

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Joseph White <jhw@es.rti.org>  
Subject: [6841] Small Keyers for QRP rigs (fwd)  
Message-ID: <Pine.ULT.3.90.960408224310.4544A-100000@ranger>

Two weeks ago I posted the question "what keyers are most suitable for building into compact QRP transceivers?" Following are the keyers that fellow QRPers said they have built into their rigs and the number of responses for each:

Wilderness Radio	10
Curtis Chip based keyers	
With Board by Daniel of Singapore	3
Homebrew board	1
OHR	2
Whiterook	1
CMOS III	1
Radio Adventures	1

Following is a little more information about each along with sources. Price information is included as a guide however some price increases may have occurred.

#### WILDERNESS RADIO KC-1:

The clear winner in the popularity contest was Wilderness KC1. This unit is a combination keyer/frequency readout consisting of a 0.8 x 2.5" board that mounts to the front panel by the nuts on its two push buttons switches and the speed control. The keyer is a 7 to 50 wpm iambic keyer with a 50-character memory. When connected to the transceiver VFO, it calculates the xmit frequency by applying a user-programmed offset to the VFO frequency that it measures, and outputs the three-digit kHz reading in morse code through the xcvr's audio. For example, if the xcvr is set to 7.123, the keyer will output 1 2 3 in morse code. Up to four different offsets can be programmed for multiband rigs.

The microprocessor in the KC1 runs only when the keyer is actually generating a character (plus the programmable delay that follows the character) or when it is receiving user commands via the paddle input. Since microprocessors typically generate some interference, a muting feature is provided which allows the keyer to mute the receiver when its microprocessor is active. An audio sidetone is available so the operator can hear what is being sent. The audio sidetone may be set to a different pitch than the sidetone used when commands are being entered via the paddle (the rig is not keyed when commands are being entered).

This keyer may be built into several popular QRP rigs using instructions included in the manual. The wilderness radios such as the Sierra include connections for the keyer. Other radios may require some modifications. For example, NorCal versions of the Sierra may require

the addition of a two-FET muting circuit if the microprocessor noise is objectional. The designer, Wayne Burdick says that not all users have found this modification necessary but he suspects that the interference will be objectional on at least some bands.

For further information on this keyer and the installation of it in a Sierra, read Stan Cooper's (K4DRD) article in the April 96 QRP Quarterly.

Source of the KC-1 (price about \$45) is:

Wilderness Radio, PO Box 734, Los Altos CA 94023-0734

(415) 494-3806

<http://www.fix.net/jparker/wild.html>

#### CURTIS CHIP BASED KEYERS:

Second in popularity were versions built on the popular Curtis keyer chips. These chips contain all the smarts for iambic keying allowing the construction of very compact keyers. Early versions of the chip were either A or B versions: In the B version, when a squeeze (simultaneous pressing of dot and dash keys) is released during the generation of an element (dot or dash), the opposite element is generated following the completion of the current element. In the A version, no additional element is transmitted following the current element. Also there was an 'M' version that contained an analog voltage output to indicate keyer speed. The current version, 8044ABM contains all of these features. The A/B mode is selected by a jumper between pins. One undesirable feature of the Curtis chips is that they puts out a short key closure upon power up. Some kits based on this keyer include additional circuitry to surpress this bug.

A keyer based on the 8044 and 8044B chips is described in numerous editins of the ARRL Handbook (its in my 1993 edition). Boards for this keyer and similar units employing the 8044ABM are available from FAR circuits. The board is roughly 2x2.25" with external controls. This board does not contain the initial burp surpression. Sources for the 8044ABM chips and/or boards are:

Boards for 8044ABM based keyer, \$4.25 plus shipping:

FAR Circuits, 18N640 Field Court, Dundee, Illinois 60118

Board and 8044ABM chip -- limited supply \$17:

NorCal c/o Jim Cates, 3241 Eastwood Road, Sacramento, CA 95821.

Kit including board, \$31.00:

624 Kits, 171 Springlake Drive, Spartanburg, S.C. 29302

(ph 803 573 6677)

Kit including board, w/ audio amp, \$39.95 (other options avail.)

Jade Products, Inc., E. Hampstead NH 03826-0368 (ph 800 523-3776)

Bare Chips

Jade Products (address above)

Mouser Electronics, 958 N. Main St., Mansfield, TX, 76063

(ph 800 992-9943)

Ocean State Electronics,

PO Box 1458, 6 Industrial Dr, Westerly, RI 02891

(ph 401 596-3080)

Whiterook offers a battery powered 8044-based keyer, the MK-88, that is 2.5x2x1 and sells for about \$60. For information on their MK-88, call (805) 339-0702.

OHR also makes one that incorporates the antiburp circuitry that sells for about \$40. Their address is

Oak Hills Research, 20879 Madison Street, Big Rapids, MI 49307  
(ph (orders only) 800 842-3748)

It is possible to mount the chip on a perf board with a few other components and wire it up to produce a working keyer that can be installed in a rig. I put together a wirewrap version in my Century 21 years ago, but the result was bigger than I would want to build into some of today's small rigs. Some time ago Daniel Wee of Singapore arranged for the fabrication of some very compact boards for this keyer. Contact Tom Jennings for more information about the availability of this board.  
<jennings@eng16.rochny.uspra.abb.com>

#### CMOS III KEYSER:

The CMOS III keyer, described in August 95 QST, is a programmable memory keyer that emulates ten different keyers including Curtis A/B and the Handbook accu-keyer. This keyer features non-volatile memory and operates on 3.5 to 5.5V. The version described in QST was mounted in a box with a regulator and six push-button switches to retrieve programmed messages and initiate command input which was done with the paddle. The basic printed circuit board is 1.6 x 2.5" and can be built into qrp rigs. Byron Johnson (WA8LCZ) describes his installation of this keyer into his sierra in the April 96 QRP quarterly. CMOS III Keyer kits are available for \$55 plus shipping from

Idiom Press, Box 1025, Geyserville, CA 95441.

#### RADIO ADVENTURES CORP:

The last keyer represented in a response to my inquiry was the Radio Adventures Corps, series of keyers. Radio Adventures offers 4 different keyer chips and board kits for them. All keyer chips are iambic keyers that offer Curtis A and B emulation, "bug" mode, straight key (with automatic spacing to clean up your keying), transmit sequencing (so antennas can be switched before the transmitter is keyed), and crystal controlled 10-40 wpm speed range. The three C1 series chips at \$14.95 offer adjustable weight and spacing to adjust for rig keying characteristics. The lower priced C2 chip, \$9.95 does not. For 24.95, RAC will supply a 1.5x3" board and C1-series chip including mating connectors. This is a BK 167, a battery powered keyer suitable for building into small rigs. Larry East W1HUE reviewed the RAC C1-Chip-based Codeboy keyer in the January 1996 QRP Quarterly. RAC will send a datasheet describing these via Email and/or a catalog of their products via USMail -- contact them at "rac@usa.net". Their telephone number is (814) 677-7221.

CONCLUSION:

Thanks to all who responded with their impressions, information, recommendations, etc. I am one who usually can't make a decision on what to buy, the path for me this time the choice is clear -- install the KC-1 in my sierra, a curtis chip based keyer in the 20-meter NN1G, the CMOS-III in a paddle mounted enclosure to use with the Ten-Tec rigs....

72,73

Joe White  
WA4GIR  
jhw@rti.org

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Jerry Parker <jparker@fix.net>  
Subject: [6880] Small Loops  
Message-ID: <199604091938.MAA18095@fletch.fix.net>

I am looking for information on small loops from individuals running them on 80 and 40.

If you are running a loop on 80 or 40 please email me with your design information and

operational experience.

Thanks, Jerry,,,WA6OWR...K

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Jim Dolson <dolsonj@ix.netcom.com>  
Subject: [6870] Small Straight Keys or Paddles  
Message-ID: <316AC517.7F6D@ix.netcom.com>

Two years ago at Dayton I got a catalog from a company that offered straight key (and maybe paddle) kits. Naturally, now that I need it, I can not find it.

Some of these keys were quite small. I'm looking for a source for a very small straight key or paddle. I know that I could make one, but I want it to look nice (hi hi).

Any suggestions???

Thanks!

Jim

WB8ZBD

dolsonj@ix.netcom.com

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996

From: "W. Daniel, 9V1ZV" <daniel@pandora.lugs.org.sg>

Subject: [6861] Synthesized VFO block

Message-ID: <316a76da.pandora@pandora.lugs.org.sg>

Hi Gang,

I am thinking of building a PLL controlled VFO. This should preferably be simple (low parts count), and the PLL should be serially programmed, such as using the Motorola MC145155-2 or maybe one with a 4-bit data bus such as the MC145145-2. The whole idea is that the VFO must be easy to build without needing too many data bus connections.

The eventual VFO should be programmable for a frequency in the 2-5 MHz region, whose primary purpose is to replace the existing VFO's found in many QRP rigs. I am aware of a few articles that have appeared in several magazines featuring such projects but I do not have those articles, nor do I know if they fit my bill.

The reason I am looking into this is:-

1. I figured out how to use microcontrollers and this has paved the way for me to play with these parts without excessively complicated hardware. It is really very easy.
2. I have figured out how to use dot matrix LCD displays and found a really cheap source for them. This is ideal for displaying frequencies.

Because of the above reasons, I am now inspired to build a PLL version of the NN1G rig, essentially retaining most of the design but incorporating a VFO. I would be most glad if someone could help me realize this project. Right now I am looking at the Motorola data book, at their PLL IC's and asking myself if this is a good way to go. Good is defined by:-

1. Easy to get parts
2. Cheap to procure
3. Easy to implement

If this VFO block works out, it would mean:-

1. No need to hunt for tuning capacitors anymore. Consequently, rigs can be smaller since the push-buttons or optical shaft encoders are usually smaller and more flexible in terms of positioning and placement.
2. Stable (minimal drift VFO's) and possibly more accurate tuning.
3. With the incorporation of an MCU in the circuit, features like memory keyers or computer control could be standard with every VFO block with no or little additional cost since it uses the same hardware.
4. Something new for all of us to learn. The state of QRP homebrew design has pretty much remained the same for the last few years. Most design revolve around the same old building blocks. Maybe its time for us to move on, just a little.
5. I get to add an LCD display to all my rigs making them look really cool.

Well, there you go. I am open to suggestions. TIA.

73 de 9V1ZV Daniel

--

Daniel Wee | daniel@pandora.lugs.org.sg  
9V1ZV | daniel.wee@f516.n600.z6.fidonet.org

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: msdooley@rdxsunhost.aud.alcatel.com (Michael S. Dooley)  
Subject: [6843] UFO stuff  
Message-ID: <9604090341.AA11249@collie.aud.alcatel.com>

Chuck and the NorTex gang.

There's a town near here where a UFO supposedly landed we could operate from! They made a movie there about it a few years ago... Now what was the name of that place?

Mike KE4PC

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "David Kreinberg" <kreinbd@ccgate.dl.nec.com>  
Subject: [6888] VERTICAL WIND-LOAD  
Message-ID: <9603098290.AA829091545@smtpgw.ccgate.dl.nec.com>

Gang:

Sorry, this is not exactly QRP, although I'm in love with my newly installed R5 vertical and have gotten nothing but 599's on 20m with it and 2 watts! (about 25 Q's so far; 5 DX!)

My question (for those interested) is about the vertical and wind loading. Many of you know that it can get VERY windy here in TX. I have the antenna mounted about 2 feet off the ground on a steel pipe cemented into the ground. The pipe isn't going anywhere, however, the top 1/3rd of the vertical gives a bit of sway in the wind. I realize that it is designed to "give" a little, but how much is too much? We haven't had a BIG wind day here since I put it up, so I haven't observed it that way yet. I'm not sure if I should guy it to the fence, or is this necessary? Some have said to guy it using fishing line which is both strong and invisible. But is this necessary for a ground mounted antenna?

What do the wind load ratings in the books mean exactly anyway.

Thanks for any advice and help.

72/73 de Dave AC5GY  
QRP-L #25

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: JEVERHART@cayman.vf.mmc.com  
Subject: [6853] VX0 Research  
Message-ID: <960409094120.23ee6ea9@carib.vf.mmc.com>

Gang,

Boy did I ever pick the wrong weekend to go see the cherry blossoms in DC!  
Oops, sorry honey, yes the blossoms were great and I'm glad I went :-).

But one of my favorite topics came up on qrp-l \_ VX0s!

As has been pointed out, the amount you can swing a crystal depends a lot on



the individual unit. Remember, it is a high-q mechanical resonator and as you "pull" it from its natural resonance, its losses increase and its electrical impedance can vary dramatically. So varying a crystal oscillator's frequency is a balancing act between pulling it and keeping it stable. The best VXOs maintain stability better than a VFO while giving an extended tuning range.

There are naturally various ways of doing this. The multiple choke method mentioned by Roy Gregson as having been introduced in SPRAT by Ha Jo Brandt is a very interesting one. The tuning range of a simple vxo can be extended by using large inductors, but their effect is spoiled by inherent stray capacitance of the windings. Breaking the inductance up into multiple chokes lessens the effect of stray capacitance.

As was pointed out by another fellow (WB0\_\_\_ sorry, I deleted the file) you can specify crystal characteristics that enhance "pullability" but.. you usually pay a lot for it!

One interesting approach uses an artificial "quarter wave line" to invert the low series resistance of a crystal to a high parallel value and it "swallows up" the parallel capacitance to give somewhat linear tuning. This circuit was used as an FM modulator back in the 50's and has been written up numerous times in professional literature and several times in ham magazines. A military FM radio of the 60's used it in an 11.5 MHz voltage controlled crystal oscillator (VCXO) with a tuning range in excess of +/- 20 kHz. With pretty good temperature stability, it was the FM modulator in the PRC-25 and PRC-77 UHF backpack radios.

I'm working up several ideas along this line as time permits and will write them up in ham and qrp newsletters. Also, if anyone is interested I can provide a bibliography. Let me know and I'll post the info tomorrow.

72/73,

Joe E., N2CX

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Mike Cloud <cloudm@mhsgate.meth-mem.org>  
Subject: [6883] X  
Message-ID: <7A7A6A3101172C16@mhsgate.meth-mem.org>

Hi, name here is Mike, QTH nr Memphis, TN. I guess that this is my first email to the list altho I have subscribed on and off for the past couple of years. I am in the process of upgrading my QRP operation and have for sale a couple of items that may be of interest to the members of this group.

1) MFJ 9040 - fixed for drift es speaker volume, works GREAT, covers entire CW sub-band. Looks brand new. Lost the box (maybe scratch around in the attic for it) but have original manual, upgrade notes, etc. I wud like \$125 for it.

2) OHR Sprint 30M qrp rig. Very well put together ( I didn't do it!). 1 es 1/2 watts. QSK, sensitive DC receiver. Have had a lot of fun wid this little jewel. Looks new, with original manual. Only drawback is that it is very voltage sensitive es will behave right only when fed 13.2 to 13.6 volts. I want \$75 for this.

3) HY-GAIN tape measure adjustable dipole. Picked this up at a hamfest couple of years ago and have used it extensively with the above rigs. Kinda beatup (came to me that way) with abt 15 ft of the stainless steel missing from one leg. I have re-marked it for all bands 40 and above and works great. These are pretty expensive/kinda hard to find things on the used market. I paid \$35 for it and want the same unless, I can sell the above two rigs to the same person, at which time, I will throw the antenna in for free for the package price of \$200.

I can be contacted during the day at (901)726-8468, at night at (901)377-2075, or by email at [clouddm@mhsgate.meth-mem.org](mailto:clouddm@mhsgate.meth-mem.org) .

I work a lot of 30m and have worked a number of the members of this list there. Occasionally I call "CQ QRPL" and you wud be surprised at the response.

Tnxs to all es especially the list keepers...de Mike, KR4IT

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "David D. Meacham" <ddm@datatamers.com>  
Subject: [6845] Re: Antenna analyzers  
Message-ID: <Pine.LNX.3.91.960408202217.3831A-1000000@dt1.datatamers.com>

Dick,  
I LOVE my Autek!  
72, Dave, W6EMD

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Allen Jones <ajones@adsnet.com>  
Subject: [6862] Re: Antenna Analyzers  
Message-ID: <199604091611.LAA11271@alice.adsnet.com>

At 10:02 AM 4/9/96 -0400, Joe E., N2CX wrote:

<SNIP>

>I guess the bottom line is that the MFJ is probably easier to use and  
>straightforward, while the Autek unit is much smaller and \*much\* more  
>versatile. Having both available, sometimes I use one, sometimes the other,  
>but the Autek will be with me at QRP To The Field.

>

>The AEA unit? Well it looks nice but I'm afraid it's too rich for my blood. I  
>know several folks with MFJs and Auteks, but nobody with the AEA.

>

If only the Autek covered 6 & 2M. Folks with much interest in antenna experimenting on those bands have no choice other than the MFJ. I have been using the model 209, the one without the counter, in combo with one of the Radio Shack handheld counters. I'm very pleased with the results, at least until Autek expands the range of their analyzer. :-)

72/3 de Allen, K9DZE

=====

Allen Jones K9DZE ajones@adsnet.com

Michigan City, Indiana EN61nq

ARCI G-QRP NorCal QRP-L #112

=====

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996

From: "L. B. Cebik" <cebik@utkux.utcc.utk.edu>

Subject: [6869] Re: EZNEC

Message-ID: <Pine.SOL.3.91.960409124053.27471C-100000@utkux4.utcc.utk.edu>

On Tue, 9 Apr 1996 KFGlynn@aol.com wrote:

> Is anyone using EZNEC ant. modeling software? I'd appreciate any comments on  
> it's effectiveness. Is there shareware available?

Kevin,

I have been using EZNEC for quite a while. It is not shareware, but a commercial program developed by W7EL, Roy Lewallen. His ads are in all the major ham magazines. What follows is not an endorsement, since each software user must determine what works best for his or her needs. It is rather a quick sketch of the program features and source information. I would be glad to do something similar for any other ham software package I have, should anyone be interested.

EZNEC is a NEC-2 implementation using essentially the same successful interface Roy developed for MININEC in the program ELNEC. Although NEC-2

does have some limitations (it hates dissimilar diameter element junctions, especially at other than straight line geometries), it is more flexible and accurate in a number of ways. You can specify lengths of transmission lines anywhere in the system (phasing, feeding, etc.) Results for antennas less than 0.2 wavelengths over ground are more accurate than with MININEC due to the use of Norton-Sommerfeld ground equations. While MININEC implementations are generally limited to about 256 wire segments, EZNEC can handle about 500 (and its big brother, EZNEC-M can handle over 2800). MININEC has trouble with tight angles and requires tapered length element segments for quads and the like; NEC-2 can handle these geometries with fewer segments and no tapering.

Both ELNEC and EZNEC have a very similar look, with a main menu, a wires table with many short cuts, and separate menus for setting up the source, loads, and transmission lines (the last on EZNEC only). The far field patterns can be easily controlled, and the 3-D view of the antenna you construct can also include current levels and a simplified view of the far field pattern for orientation. You can change ground, wire loss, units, and other parameters easily from the main menu. You can also run frequency sweeps.

Both ELNEC and EZNEC are DOS programs, but run as Windows applications. The programs are integrated in compiled form, so that antenna files are not ASCII readable outside of the program. However, most output reports are saved as ASCII files. Frequency sweep outputs can be used as inputs to W7ZOI's MicroSmith.

Current prices (4/9/96): ELNEC: \$49 EZNEC: \$89 (\$3 delivery surcharge).

Source: Roy Lewallen, P.O. Box 6658, Beaverton, OR 97007

For more detailed information, please contact the program author.

-73-

LB, W4RNL

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: David Adams <dave@flowserver.stem.com>  
Subject: [6867] Re: France  
Message-ID: <9604091659.AA10062@flowserver.stem.com>

For all those who have been asking about my new key, I knew little =  
about it other than it was made in Spain...but a friend of the =  
maker emailed me and, as if I should be suprised, Chuck already =

has a picture of the key up on the lehigh site...go figure.

Dave

---

=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=  
=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D-=3D  
David J Adams N9UXU QRP-L #83  
dave@flowserver.stem.com NorCal QRP #1442  
(415) 813-5028 Flow Cytometry Specialist

Begin forwarded message:

X-Nupop-Charset: English  
From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "Jon Iza" <iapizloj@biccc00.bi.ehu.es>  
Subject: Re: France

Dave,  
I hope you had a good time in France. =46rom your comment about =  
your new  
key I can infer is a key from my friend Guillermo, EA6YG. Please  
check the lehigh server for Chuck's pictures of keys. It is under =  
the  
name spain.jpg.  
Guillermo is selling these keys to GES in France and other dealers =  
all  
around Europe. I have been trying to help him getting into the US  
market, but it's a tough cookie to bite. Dave Ingram (of CQ) wrote  
last February about these and some other keys.  
In order to avoid the slipping of the key all around the place, =  
notice  
they are four "holes" on the base. You may use them to stick a =  
little  
bit of mastic (here is called Blue-Tak, yessir, in English) which =  
may  
fix the key onto the table and may be later removed without =  
leaving any  
traces.  
I hope Guillermo won't read your comment about "Bencheristic" =  
mech. He  
wouldn't like it :-)  
Anyway, I hope you will enjoy it.  
Last year I bugged Guillermo into building a new vertical model =  
with a  
very small footprint, for QRP rigs, and he has now a nice one =

(shown on  
February's CQ). That's also another "I-wanna-that" too. But too =  
much keys  
for now.  
Be well.  
jon, ea2sn

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "L. B. Cebik" <cebik@utkux.utcc.utk.edu>  
Subject: [6894] Re: HAMCALC  
Message-ID: <Pine.SOL.3.91.960409203602.16446B-100000@utkux4.utcc.utk.edu>

On Tue, 9 Apr 1996 facmsa@facilities.buffalo.edu wrote:

>  
> Does anyone know where I can download a copy of HAMCALC? It is a nice  
> program by a Canadian ham and includes a module based on the Larry East coax  
> trap article in Compendium #2.

Mark,

Versions of HAMCALC have been on the oak.oakland.edu site. However, they may not be the latest. The latest version is 17 (just received my copy). to obtain the latest version, write to George Murphy, VE3ERP; 77 McKenzie Street; Orillia, ONT L3V 6A6; Canada. George requests a \$5 donation to cover the cost of disks and mailing, with any excess being sent to a Canadian program for blind hams. Do not send postage or envelopes, as these are difficult for him to deal with.

For those not familiar with HAMCALC, it is a structured menu of ham calculation programs, all in BASIC, with its own copy of GWBASIC attached. It can be installed on a hard drive or used from the 1.44 3.5" floppy George sends out. Calculations range from the common (Ohms laws, R, E, I, X, C, F, etc.) to the less common (antennas, transmission lines, stubs, coil construction, etc.). It is difficult to give a feel for a collection of over 100 handy calculation programs from sources all over the world. There is even a program for calculating capacity hats for vertical at least 60-degrees long (and corresponding dipoles), and another for calculating stairs down into your basement shack or up to your attic shack.

Once you have a copy of HAMCALC, treat it as freeware and distribute to anyone interested. If anyone is experienced with ZIPPING effectively, Murph would certainly grant permission for its storage in the QRP-L archives. And if anyone has any useful BASIC calculation programs not yet on HAMCALC, Murph would be glad to receive them for inclusion.

Hope this info is useful.

-73-

LB, W4RNL

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "David D. Meacham" <ddm@datatamers.com>  
Subject: [6848] Re: Hey Warmup under way on 30M  
Message-ID: <Pine.LNX.3.91.960408205118.3831E-100000@dt1.datatamers.com>

Chuck,

I don't mind daylight time, but I HATE the time CHANGE. I resent big brother dictating that I should change my clocks two times a year! Frankly, it takes me a week or so to get used to the new time. I wish we could have NO CHANGES, just continuous DST or whatever. I'll bet a lot of people feel the same way.

Regarding NEC2, I downloaded NEC2PC from one of the sites you posted (the second one, I believe). Gave it a quick try & it seems to work. Haven't spent any time with it yet. Thanks again for the site info.

72, Dave, W6EMD, Redwood City, CA

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: TIMOTHY J PETTIBONE <tpettibo@nmsu.edu>  
Subject: [6854] Re: Hey Warmup under way on 30M  
Message-ID: <Pine.A32.3.91.960408233151.56001B-100000@hector>

Now Chuck, I know you are ignoring 40m but just had to tell you that I heard KL7Y, Dan, in Wasilla calling CQ DX on 7.0053 around 0345 earlier today. I, ignoring his "PSE DX ONLY" (since I've been one of his multi-op operators during contests and since I've spent time in his shack, kitchen, and bathroom) gave him a short "AB50U QRP". You have to understand, Dan doesn't like QRPers. He finds them upsetting to his contest operation mentality. He and I have had some interesting and intense discussions about QRP. At any rate, he returned my call even though he didn't remember my new call (the old ones being NL7YL and AL7OI when I carried ice around in my mustache). He gave me a 559 (begrudgingly I'm sure) and he was 15-20db over s9 here. I was using the QRP + and the Titan. Just thought you'd like to know, since you still need

Alaska on 40m.

Your friend and staunch supporter of your 30m monomaniacal behavior.

Tim AB50U  
Las Cruces, NM

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Rick Zabrodski <zabrodsk@med.ucalgary.ca>  
Subject: [6876] Re: Hey Warmup under way on 30M  
Message-ID: <Pine.SUN.3.92.960409125910.11045B-100000@ume>

On Mon, 8 Apr 1996, David D. Meacham wrote:

> Chuck,  
>  
> I don't mind daylight time, but I HATE the time CHANGE. I resent big  
> brother dictating that I should change my clocks two times a year!  
> Frankly, it takes me a week or so to get used to the new time. I wish we  
> could have NO CHANGES, just continuous DST or whatever. I'll bet a lot of  
> people feel the same way.  
>  
> 72, Dave, W6EMD, Redwood City, CA

Dave, there is a place for you in Canada....it is called Saskatchewan.  
There is a catch....its north of North Dakota and has been known to get  
somewhat colder than California in the winter. ;-)>

Dr. Rick Zabrodski BSc, MD, CCFP(E)	*	VE6GK
Clinical Assistant Professor	*	NorCal 519 ARCI 7650 GQRP 8329
Faculty of Medicine, Univ. of Calgary	*	"Power is no substitute for skill"

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Bob Hightower <ki7mn@dancris.com>  
Subject: [6890] Re: Hey Warmup under way on 30M  
Message-ID: <199604092315.QAA01117@user.dancris.com>

At 01:01 PM 4/9/96 -0600, you wrote:  
>On Mon, 8 Apr 1996, David D. Meacham wrote:



>  
 >> Chuck,  
 >>  
 >> I don't mind daylight time, but I HATE the time CHANGE. I resent big  
 >> brother dictating that I should change my clocks two times a year!  
 >> Frankly, it takes me a week or so to get used to the new time. I wish we  
 >> could have NO CHANGES, just continuous DST or whatever. I'll bet a lot of  
 >> people feel the same way.  
 >>  
 >> 72, Dave, W6EMD, Redwood City, CA  
 >  
 >Dave, there is a place for you in Canada....it is called Saskatchewan.  
 >There is a catch....its north of North Dakota and has been known to get  
 >somewhat colder than California in the winter. ;-)>  
 >  
 >  
 >Dr. Rick Zabrodski BSc, MD, CCFP(E) \* VE6GK  
 >Clinical Assistant Professor \* NorCal 519 ARCI 7650 GQRP 8329  
 >Faculty of Medicine, Univ. of Calgary \* "Power is no substitute for skill"  
 >  
 >  
 Or, you could try Arizona, although it do get some warm at times of the year.  
 73,

Bob NorCal #1228, ARCI #8918, Qrp-1 #271

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
 From: "David D. Meacham" <ddm@datatamers.com>  
 Subject: [6846] Re: Is TV corona dope = Q dope ?  
 Message-ID: <Pine.LNX.3.91.960408202648.3831B-100000@dt1.datatamers.com>

Bernard,  
 I think they are quite different mixtures. I would not use the red stuff  
 except on TV yokes, etc.  
 72, Dave, W6EMD

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
 From: Pat Taber <ptaber@logicraft.com>  
 Subject: [6850] Re: Is TV corona dope = Q dope ?  
 Message-ID: <199604091152.HAA80330@nss2.CC.Lehigh.EDU>

>I got another related question: I just finished my Sprint 30m: the coils are  
>not protected or covered by anything (nor are they in the Explorer II).  
>Should I just leave it like this or should I "Q-Dope" them? The manual says  
>nothing about that.

Let's rephrase the question, "My radio ain't broke. Should I fix it?"

>>>==>PStJTT

```
=====
Patrick Taber                      Email: ptaber@logiccraft.com
Principal Software Engineer        Phone: (603) 880-0300
Logiccraft Information Services    Fax:   (603) 880-7229
22 Cotton Road
Nashua N.H. 03063                Also known as: KC1TD
```

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: N0oct@aol.com  
Subject: [6868] Re: Is TV corona dope = Q dope ?  
Message-ID: <960409130031\_509342088@emout06.mail.aol.com>

In a message dated 96-04-08 22:45:32 EDT, you write:

>I would go for the Q-Dope (or Beeswax, seems this is also suitable) coating  
>option, unless someone has a reason not to do it. It seems to me the toroids  
>would be more stable if the wire cannot move. Any thought? what you guys did  
>with your sprints, explorers ...  
>  
>Bernard, KB2TGH.

Q-dope is certianly one way to do it. Another way is to fit heat shrink tubing over the toroid and then shrink the thing. Test the toroid afterwards to be sure the value doesn't change significantly. I've had good luck with this technique, and the value of the toroid doesn't change as much as it does with Q-dope. Also, it is more "undoable" if you ever want to reuse that toroid.

As for "Is Corona dope Qdope?", the answer is no. Q-dope is polystyrene dissolved in toluene. Polyester isn't the same thing. While the corona dope may prevent the high voltage excursions on the backs of TV picture tubes [ or whatever], my guess is that it may significantly change the value of a toroid, as well as its Q. That is speculation, however.

Finally, with all this talk of dope, can the DEA be far behind?

73, jim n0oct

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Monte Stark <ku7y@sage.dri.edu>  
Subject: [6874] Re: Is TV corona dope = Q dope ?  
Message-ID: <Pine.SUN.3.90.960409114403.2012A-100000@vortex.sage.dri.edu>

On Tue, 9 Apr 1996 N0oct@aol.com wrote:

>  
> Finally, with all this talk of dope.....  
>

Hmmmmm, must you people talk about Clinton here? :-)

73, Ron,

.....KU7Y.....ARCI #8829.....Monte "Ron" Stark.....  
....ku7y@sage.dri.edu.....Washoe Lake, Nevada....  
....QRP-L #17....ARRL....NorCal #330.....NRA LIFE.....

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "David D. Meacham" <ddm@datatamers.com>  
Subject: [6847] Re: Lead Acid Battery Charger  
Message-ID: <Pine.LNX.3.91.960408204018.3831C-100000@dt1.datatamers.com>

Allen,  
A&A also offers the chip alone for a reasonable price.  
72, Dave, W6EMD

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "David E. Shelton" <deshel01@homer.louisville.edu>  
Subject: [6858] Re: Lead Acid Battery Charger  
Message-ID: <Pine.OSF.3.91.960409104230.22255B-100000@homer.louisville.edu>

I have two large lead acid cells, at least large by QRP standards, 26AH cells. I considered buying Jade or A & A battery chargers with the auto-shutoff feature. However, I could not justify spending the \$\$\$ when

my local Wal-Mart has these very compact and effective Schumacher 1.5 amp automatic battery charger, model SE112S, for about \$20. I have been using this charger for about the last 5 months and it comes with a 3 year warranty. You cannot beat the value. The IC in this sealed unit shuts down the charger when ever the battery's voltage is >13V. So if you are looking for a battery charger that does the same thing as the expensive charger kits this is it. Save your money something more essential may come along, like another key or rig (Hi Hi).

73/72,

```
-----
David E. Shelton, RN, BSN  KE4FPS |
|
University of Louisville, SON |
deshe101@homer.louisville.edu |
103560.1177@compuserve.com |
KE4FPS@WD9AGK.#SIN.IN.USA.NA (packet) |
"Every Patient Deserves A Nurse!" |
|
QRP ARCI #9079 FISTS #2103 QRP-L #142 |
-----
```

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: Bernard Seront <seront@seism1.ess.sunysb.edu>  
Subject: [6871] Re: Lead Acid Battery Charger  
Message-ID: <2.2.32.19960409173012.00741950@seism1.ess.sunysb.edu>

At 10:53 AM 4/9/96 -0400, you wrote:

>I have two large lead acid cells, at least large by QRP standards, 26AH  
>cells. I considered buying Jade or A & A battery chargers with the  
>auto-shutoff feature. However, I could not justify spending the \$\$\$ when  
>my local Wal-Mart has these very compact and effective Schumacher 1.5 amp  
>automatic battery charger, model SE112S, for about \$20. I have been using  
>this charger for about the last 5 months and it comes with a 3 year  
>warranty. You cannot beat the value. The IC in this sealed unit shuts  
>down the charger when ever the battery's voltage is >13V. So if you are  
>looking for a battery charger that does the same thing as the expensive  
>charger kits this is it. Save your money something more essential may  
>come along, like another key or rig (Hi Hi).  
>

Are you sure the charger shuts down at 13V?

I use a 24Ah gell cell and it says on the side of the battery I have to

charge it at 14.4V, with a current not more than 1/10 of the capacity for about 10-12 hours, for a full charge.

To maintain it in charge they say you float it under 13.8V (indefinitely). All the information I found elsewhere is concordant with that (in the ARRL handbook for example). I don't think you are ever going to charge the battery at 13V.

What I do is just let the battery connected to my cheap 13.8V, 3A power supply all the time and connect my equipment to that. This way the battery is at the most 90% charged. If I really want to full charge the battery, I adjust the output of the power supply to 14.2V (almost all of them are internally adjustable, mine gives 14.2V max) for a couple of hours.

I might try to get the UC3906, and put it in between the power supply and the battery for an automatic control (per the handbook schematic).

Does anyone know where A&A Engineering web page is? I saw the UC3906 on sale this weekend somewhere on the web (I guess it's from A&A), but when I realized yesterday I couldn't find it anymore.

Information about batteries and charge methods can be found at:

[http://www.cadex.com/cadex/art\\_1.htm](http://www.cadex.com/cadex/art_1.htm)

<http://nyquist.ee.ualberta.ca/~schmaus/dcbat.html>.

Bernard, KB2TGH.

-----

Bernard Seront, [seront@seism1.ess.sunysb.edu](mailto:seront@seism1.ess.sunysb.edu)

<http://rock.ess.sunysb.edu:8080/>

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996

From: GREGOIRE@endor.com (ERNEST GREGOIRE)

Subject: [6891] Re: N.E. QRP Club

Message-ID: <199604092336.TAA136341@nss2.CC.Lehigh.EDU>

>Tried to catch the SSB net tonight on 3885 at 21:00... Nothing heard.

>Is the net active?

>

>/joel wa1qvm malman@bbn.com

>

Hello Joel,

New England QRP Club Nets:

Net Name	Date&Time	Freq.	Net.Control	Asst.Net Control
NEN	Sat.08:30	7040	WA1JXR,Greg	K3TKS,Danny
GLN	Wed.21:00	3560	NN1G,Dave	
SSB	Mon.21:00	3885	WA1JXR,Greg	

Times given are local time,(E.S.T. & E.D.T.) depending on the time of year.  
Daylight savings time ends the last weekend in October.

So you still have time to catch it tonight. I'll be there my self.

de AA1IK                    N.E.-QRP-C. # 202    ( Lead by example, It is better to    )  
                               QRP-L member #95.    ( pull a string than it is to push it.)  
 Ernie Gregoire  
 RR 1 Box 221  
 Canaan, NH. 03741

New England QRP Club, information  
 available on request by sending me a  
 S.A.S.E. or via E-mail.

e-mail : GREGOIRE@ENDOR.COM  
 packet : AA1IK@WA1WOK.FN43FE.NH.USA

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
 From: "L. B. Cebik" <cebik@utkux.utcc.utk.edu>  
 Subject: [6895] Re: NEC2 Questions  
 Message-ID: <Pine.SOL.3.91.960409205025.16446C-1000000@utkux4.utcc.utk.edu>

Chuck,

Small correction of a typo in your background to NEC: ELNEC is MININEC;  
 EZNEC is NEC-2.

-73-  
 LB

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: GREGOIRE@endor.com (ERNEST GREGOIRE)  
Subject: [6877] Re: QRP++,SSB WORKS FINE  
Message-ID: <199604091902.PAA121217@nss2.CC.Lehigh.EDU>

B WORKS FINE

>

>Hi--

>Just been reading your mail re your QRP++..I'm still waiting for mine to be  
>returned..sent it in for start on March 5....What type of antenna did you  
>work that Poland SSB station on??

>

>Secondly..where did you acquire QRP-L Number 95 from??

>

>Thanks and 73

>

> Dave

> KB7ZZ

Hello Dave,

I am replying at the reflector so that someone who has  
more knowlege than I can answer you about the QRP-L no.

Basicly, it was fad that caught on. Go to the QRP-L home page and the  
information will be there.

The antenna is a TH 7 up 72 feet.

73 de AA1IK

Ernie

de AA1IK                    N.E.-QRP-C. # 202    ( Lead by example, It is better to    )  
                             QRP-L member #95.    ( pull a string than it is to push it.)

Ernie Gregoire

RR 1 Box 221

Canaan, NH. 03741

New England QRP Club, information  
available on request by sending me a  
S.A.S.E. or via E-mail.

e-mail : GREGOIRE@ENDOR.COM

packet : AA1IK@WA1WOK.FN43FE.NH.USA

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "Dwight G. Jones" <104307.2100@compuserve.com>  
Subject: [6896] RE: QRP-L QRT????  
Message-ID: <199604092110\_MC1-2D7-8308@compuserve.com>

Hi everyone,  
My lack of e-mail appears to be Compuserve's fault. Thank you if you responded to my other post. I would thank everyone individually, but I don't know who responded (since Compuserve seems to be losing my e-mail)

73  
Dwight K06FE

From owner-qrp-l@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "N100Q Tom R. @ MR01 09-Apr-1996 1426" <randolph@est.ENET.dec.com>  
Subject: [6875] re: Synthesized VFO block  
Message-ID: <9604091846.AA29909@us4rnc.pko.dec.com>

> I am thinking of building a PLL controlled VFO. This should preferably  
> be simple (low parts count), and the PLL should be serially programmed, such  
> as using the Motorola MC145155-2 or maybe one with a 4-bit data bus such as  
> the MC145145-2. The whole idea is that the VFO must be easy to build without  
> needing too many data bus connections.

One thing I'd love to see is an interface chip that allows an experimenter to control one of the programmable freq synth chips using a simple interface such as thumbwheels. Ideally, this chip would be done without any fancy programming tools or equipment, and would be easily available, something like the Curtis chips for keyers. I think something like this is what's needed for freq synthesis to really catch on in the homebrew community.

Microcontrollers are ok, it's just that I think people are a bit wary of buying a ~\$75 part from a sole source that will likely go away within 6 months. It's not that tough to find air-variables at flea markets, but no one wants to learn how to program microcontrollers if their VFO breaks 6 months from now.

=====  
Tom Randolph N100Q NE-QRP 419 QRP-L 87 ARRL randolph@est.enet.dec.com  
=====



From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: "Dana H. Myers" <myers@bigboy.West.Sun.COM>  
Subject: [6879] re: Synthesized VFO block  
Message-ID: <Roam.3.0.829076256.27400.myers@bigboy>

> > I am thinking of building a PLL controlled VFO. This should preferably  
> > be simple (low parts count), and the PLL should be serially programmed, such  
> > as using the Motorola MC145155-2 or maybe one with a 4-bit data bus such as  
> > the MC145145-2. The whole idea is that the VFO must be easy to build without  
> > needing too many data bus connections.

Then you'd want to use a serially programmed part with a 1 bit data bus ;-).  
You can pump these using the parallel port on a PC and a short program.

> One thing I'd love to see is an interface chip that allows an experimenter  
> to control one of the programmable freq synth chips using a simple interface  
> such as thumbwheels. Ideally, this chip would be done without any fancy  
> programming tools or equipment, and would be easily available, something like  
> the Curtis chips for keyers. I think something like this is what's needed for  
> freq synthesis to really catch on in the homebrew community.  
>  
> Microcontrollers are ok, it's just that I think people are a bit wary of  
> buying a ~\$75 part from a sole source that will likely go away within 6  
> months. It's not that tough to find air-variables at flea markets, but no  
> one wants to learn how to program microcontrollers if their VFO breaks 6  
> months from now.

Given that PIC microcontrollers are ideally suited for the job of programming  
serial PLLs and sell for < \$10 from many sources, they're pretty appealing.  
If I just had the time, I've been thinking about making available a  
program for a PIC that interfaces an LCD and rotary encoder to the  
Motorola PLLs. It just isn't that hard...

By the way, almost any HF synthesizer you build will require some work  
to get better than 1KHz tuning steps. The single-loop that works well  
with 5KHz steps will not work well with the kind of tuning step required  
for HF CW/SSB.

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996  
From: scicior@cp.uswc.uswest.com (Steve Ciciora)  
Subject: [6881] re: Synthesized VFO block  
Message-ID: <9604091940.AA24420@sp5-316.nts.uswest.com>

<snip>

>

> By the way, almost any HF synthesizer you build will require some work  
> to get better than 1KHz tuning steps. The single-loop that works well  
> with 5KHz steps will not work well with the kind of tuning step required  
> for HF CW/SSB.  
>

Not being an expert, here is what I have heard:

The above is correct, but a way around multi-loop PLLs is to use a DDS.  
But DDSs have incredible number of spurs. This is ok for transmitting (they  
are down far enough) but not good enough for receiving. What is done is  
setting up a DDS with a reference crystal that is a multiple of 2 (4.096  
MHz, etc) and have it output frequencies in 1/256 Hz increments. Then use  
a PLL to multiply it up by 256 to get 1 Hz increments. The DDS provides  
long term stability, and the PLL removes the phase noise (short term  
stability). This is what I hope to do someday in my spare time...

Steven Ciciora

KB0PJF

From owner-qrp-1@Lehigh.EDU Tue Apr 9 22:41:41 1996

From: "Dana H. Myers" <myers@bigboy.West.Sun.COM>

Subject: [6884] re: Synthesized VFO block

Message-ID: <Roam.3.0.829080457.12358.myers@bigboy>

> <snip>

>

> >

> > By the way, almost any HF synthesizer you build will require some work  
> > to get better than 1KHz tuning steps. The single-loop that works well  
> > with 5KHz steps will not work well with the kind of tuning step required  
> > for HF CW/SSB.

> >

>

> Not being an expert, here is what I have heard:

I don't claim to be an expert, either... ;-)

> The above is correct, but a way around multi-loop PLLs is to use a DDS.  
> But DDSs have incredible number of spurs. This is ok for transmitting (they  
> are down far enough) but not good enough for receiving. What is done is  
> setting up a DDS with a reference crystal that is a multiple of 2 (4.096  
> MHz, etc) and have it output frequencies in 1/256 Hz increments. Then use  
> a PLL to multiply it up by 256 to get 1 Hz increments. The DDS provides

> long term stability, and the PLL removes the phase noise (short term  
> stability). This is what I hope to do someday in my spare time...

Well, this is one way to use a DDS, but that isn't the only way. On the surface, this approach probably isn't as good as using a DDS as the reference frequency in a 1:1 PLL (sometimes called a "clean-up" loop) with a low loop bandwidth. The same phase noise suppression takes place, and the loop isn't as complicated as dividing and multiplying again and the overall phase noise performance may be better. The downside is that the phase comparator must operate at the desired frequency. Note that phase noise changes when you multiply (or divide) a signal by  $20 \cdot \log_{10}(N)$ , when N is the multiplication factor; in theory, dividing by 256 and multiplying by 256 should leave the phase noise unchanged. In reality, digital dividers are only so quiet and have a phase noise floor of something like -150dBc, from what I'm able to gather, so the phase noise floor of a frequency multiplied by 256 would be a slightly better than -100dBc.

An example of a clean-up loop, I've read, is in the ARK-40 CW transceiver, which mixes onto 40m and then removes the sum/difference spurs in a clean-up loop.

Another way to use a DDS is to mix the VCO down before the phase comparator. This is similar to a multi-loop synthesizer, except the DDS replaces the inner loop.

Personally, I'd avoid ever using the output of a mixer as the output of a PLL synthesizer; if at all possible, use the output of the VCO directly, perhaps with some buffering. If you need to mix in the PLL, always do it as part of the feedback loop and make sure the spurious content in the feedback loop is outside the loop bandwidth.